

ROYAL BANK OF CANADA  
Form 424B2  
April 13, 2018

---

RBC Capital Markets® Filed Pursuant to Rule 424(b)(2)  
Registration Statement No. 333-208507

Pricing Supplement  
Dated April 11, 2018  
To the Product  
Prospectus Supplement \$6,000,000  
FIN-1 Dated Redeemable Leveraged Steepener Notes,  
January 14, 2016, and Due April 13, 2028  
the Prospectus and Royal Bank of Canada  
Prospectus  
Supplement, each dated  
January 8, 2016

Royal Bank of Canada is offering the Redeemable Leveraged Steepener Notes (the “Notes”) described below.  
The CUSIP number for the Notes is 78014RAE0.

The Notes will pay interest quarterly, on the 13<sup>th</sup> day of January, April, July and October of each year, commencing on July 13, 2018. The interest rate on the Notes will depend on the “Reference Rate.” The “Reference Rate” will be equal to the difference between the 30 year CMS rate and the 2 year CMS rate. Interest will accrue at the following rates during the indicated years of the term of the Notes:

· Years 1-2: 6.00%

· Years 3-10: The Reference Rate multiplied by 8.5; provided that the interest rate can never be less than 0.00% or greater than 8.00% per annum.

We may call the Notes in whole, but not in part, on April 13, 2019 and annually thereafter on each April 13<sup>th</sup>, upon at least 10 New York or London business days’ prior written notice.

The Notes will not be listed on any securities exchange.

Investing in the Notes involves a number of risks. See “Risk Factors” beginning on page S-1 of the prospectus supplement dated January 8, 2016, “Additional Risk Factors Specific to the Notes” beginning on page PS-5 of the product prospectus supplement FIN-1 dated January 14, 2016 and “Risk Factors” on page P-7 of this pricing supplement.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. government agency or instrumentality.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The initial estimated value of the Notes as of the date of this pricing supplement is \$949.50 per \$1,000 in principal amount, which is less than the price to public. The actual value of the Notes at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value in more detail below.

RBC Capital Markets, LLC has offered the Notes at varying public offering prices and will purchase the Notes from us on the issue date at purchase prices that is 98.80% of the principal amount. See “Supplemental Plan of Distribution (Conflicts of Interest)” on page P-9 below.

We will deliver the Notes in book-entry only form through the facilities of The Depository Trust Company on April 13, 2018, against payment in immediately available funds.

RBC Capital Markets, LLC



Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

**SUMMARY**

The information in this “Summary” section is qualified by the more detailed information set forth in this pricing supplement, the product prospectus supplement FIN-1, the prospectus supplement, and the prospectus.

Issuer: Royal Bank of Canada (“Royal Bank”)  
 Issue: Senior Global Medium-Term Notes, Series G  
 Underwriter: RBC Capital Markets, LLC  
 Currency: U.S. Dollars  
 Minimum Investment: \$1,000 and minimum denominations of \$1,000 in excess of \$1,000  
 Pricing Date: April 11, 2018  
 Issue Date: April 13, 2018  
 Maturity Date: April 13, 2028  
 CUSIP: 78014RAE0

Interest Rate: Years 1-2: 6.00%  
 Years 3-10: The value of the Reference Rate multiplied by 8.5; provided that the interest rate can never be less than 0.00% or greater than 8.00% per annum.

Reference Rate: High-Side Reference Rate minus Low-Side Reference Rate  
 High-Side Reference Rate: 30 Year CMS Rate, as reported on Reuters Page ICESWAP1 or any successor page thereto at 11:00 am New York time  
 Low-Side Reference Rate: 2 Year CMS Rate, as reported on Reuters Page ICESWAP1 or any successor page thereto at 11:00 am New York time

Type of Note: Your Notes are called a “Leveraged Steepener Note” because, from the beginning of year 3 until the Maturity Date or the date of redemption, as the case may be, the Notes bear a variable rate of interest at a “leveraged,” or multiplied, rate, subject to a maximum interest rate, if the High-Side Reference Rate exceeds the Low-Side Reference Rate. If the High-Side Reference Rate does not exceed the Low-Side Reference Rate, interest will accrue at the rate of 0.00% for that interest period. **FOR EVERY INTEREST PERIOD THAT THE HIGH-SIDE REFERENCE RATE DOES NOT EXCEED THE LOW-SIDE REFERENCE RATE, YOU WILL NOT RECEIVE A COUPON PAYMENT.** Five U.S. government securities settlement days prior to the beginning of each interest period, beginning in the third year of the term of the Notes. A “U.S. government securities settlement day” is any day except a Saturday, a Sunday, or a day on which The Securities Industry and Financial Markets Association (or any successor thereto) recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.

P-2 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

**Interest Payment Dates:** Quarterly, in arrears, on the 13<sup>th</sup> day of January, April, July and October of each year, commencing on July 13, 2018 and ending on the Maturity Date. If any Interest Payment Date is not a New York or London business day, interest will be paid on the next New York or London business day, without adjustment for period end dates and no additional interest will be paid in respect of the postponement.

**Redemption:** Redeemable at our option, in whole, but not in part.

**Call Date(s):** The Notes are callable, in whole, but not in part, on April 13, 2019 and annually thereafter on each April 13<sup>th</sup>, upon at least 10 New York or London business days' prior written notice.

**Survivor's Option:** Not Applicable

**Minimum Investment:** \$1,000 (except for certain non-U.S. investors for whom the minimum investment will be higher)

**U.S. Tax Treatment:** The Notes will be treated as debt instruments for U.S. federal income tax purposes. We intend to take the position that the Notes will be treated as contingent payment debt instruments. Please see the discussion (including the opinion of our counsel Morrison & Foerster LLP) in the product prospectus supplement FIN-1 dated January 14, 2016 under "Supplemental Discussion of U.S. Federal Income Tax Consequences" and specifically the discussion under "Supplemental Discussion of U.S. Federal Income Tax Consequences—Supplemental U.S. Tax Considerations—Where the term of your notes will exceed one year—Leveraged Steepener Notes," and under "Supplemental Discussion of U.S. Federal Income Tax Consequences—Supplemental U.S. Tax Considerations—Where the term of your notes will exceed one year—Rules Applicable to Notes Treated as Contingent Payment Debt Instruments for Tax Purposes," which apply to your Notes. These discussions do not address the tax consequences applicable to holders subject to Section 451(b) of the Code.

**Calculation Agent:** RBC Capital Markets, LLC

**Listing:** The Notes will not be listed on any securities exchange.

**Clearance and Settlement:** DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under "Description of Debt Securities—Ownership and Book-Entry Issuance" in the prospectus dated January 8, 2016).

**Terms Incorporated in the Master Note:** All of the terms appearing above the item captioned "Listing" on pages P-2 and P-3 of this pricing supplement and the applicable terms appearing under the caption "General Terms of the Notes" in the product prospectus supplement FIN-1 dated January 14, 2016, as modified by this pricing supplement. In addition to those terms, the following two sentences are also so incorporated into the master note: RBC confirms that it fully understands and is able to calculate the effective annual rate of interest applicable to the Notes based on the methodology for calculating per annum rates provided for in the Notes. RBC irrevocably agrees not to plead or assert Section 4 of the Interest Act (Canada), whether by way of defense or otherwise, in any proceeding relating to the Notes.

P-3 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

#### ADDITIONAL TERMS OF YOUR NOTES

You should read this pricing supplement together with the prospectus dated January 8, 2016, as supplemented by the prospectus supplement dated January 8, 2016 and the product prospectus supplement FIN-1 dated January 14, 2016, relating to our Senior Global Medium-Term Notes, Series G, of which these Notes are a part. Capitalized terms used but not defined in this pricing supplement will have the meanings given to them in the product prospectus supplement FIN-1. In the event of any conflict, this pricing supplement will control. The Notes vary from the terms described in the product prospectus supplement FIN-1 in several important ways. You should read this pricing supplement carefully.

This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in “Risk Factors” in the prospectus supplement dated January 8, 2016, “Additional Risk Factors Specific to the Notes” in the product prospectus supplement FIN-1 dated January 14, 2016 and “Additional Risk Factors” in this pricing supplement, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the Notes. You may access these documents on the SEC website at [www.sec.gov](http://www.sec.gov) as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated January 8, 2016:

<http://www.sec.gov/Archives/edgar/data/1000275/000121465916008810/j18160424b3.htm>

Prospectus Supplement dated January 8, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465916008811/p14150424b3.htm>

Product Prospectus Supplement FIN-1 dated January 14, 2016:

<https://www.sec.gov/Archives/edgar/data/1000275/000114036116047762/form424b5.htm>

Our Central Index Key, or CIK, on the SEC website is 1000275. As used in this pricing supplement, the “Company,” “we,” “us,” or “our” refers to Royal Bank of Canada.

P-4 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

HISTORICAL INFORMATION

Historically, the High-Side Reference Rate and the Low-Side Reference Rate, and the difference between them, have experienced significant fluctuations. Any historical upward or downward trend in these rates during any period shown below is not an indication that the interest payable on the Notes is more or less likely to increase or decrease at any time during the term of the Notes. Royal Bank cannot make any assurances that the future levels of the High-Side Reference Rate and the Low-Side Reference Rate will result in holders of the Notes receiving interest payments after the first four quarterly payments.

The Reference Rate was 0.237% on April 11, 2018. The graph below sets forth the historical performance of the Reference Rate from June 26, 2000 through April 11, 2018.

Source: Bloomberg L.P.

Historical Period	
Total number of days in the historical period	4,642
Number of days the High-Side Reference Rate was greater than the Low-Side Reference Rate	4,638
Number of days the High-Side Reference Rate was not greater than the Low-Side Reference Rate	4

The historical performance shown above is not indicative of future performance.

P-5 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

#### HYPOTHETICAL EXAMPLES

The table below presents examples of the hypothetical interest which will accrue on the Notes with a principal amount of \$1,000 after the second year of the term of the Notes. The examples below are for purposes of illustration only. The actual interest payments will depend on the actual difference between the High-Side Reference Rate and the Low-Side Reference Rate on each interest determination date. The applicable interest rate for each interest period will be determined on a per-annum basis but will apply only to that interest period. Whether or not you would receive interest at the hypothetical interest rates below would depend on whether or not we determine to exercise our redemption right prior to the interest period in which those interest rates would take effect.

Hypothetical Difference between the High-Side minus Low-Side Reference Rates	Hypothetical Interest Rate (per annum)	Hypothetical Quarterly Interest Payment
-2.00%	0.00%	\$0.00
-1.85%	0.00%	\$0.00
-1.70%	0.00%	\$0.00
-1.55%	0.00%	\$0.00
-1.40%	0.00%	\$0.00
-1.25%	0.00%	\$0.00
-1.10%	0.00%	\$0.00
-0.95%	0.00%	\$0.00
-0.80%	0.00%	\$0.00
-0.65%	0.00%	\$0.00
-0.50%	0.00%	\$0.00
-0.35%	0.00%	\$0.00
-0.20%	0.00%	\$0.00
-0.05%	0.00%	\$0.00
0.10%	0.85%	\$2.13
0.25%	2.13%	\$5.31
0.40%	3.40%	\$8.50
0.55%	4.68%	\$11.69
0.70%	5.95%	\$14.88
0.85%	7.23%	\$18.06
1.00%	8.00%	\$20.00
1.15%	8.00%	\$20.00
1.30%	8.00%	\$20.00
1.45%	8.00%	\$20.00
1.60%	8.00%	\$20.00
1.75%	8.00%	\$20.00
1.90%	8.00%	\$20.00
2.05%	8.00%	\$20.00

P-6 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

#### RISK FACTORS

The Notes involve risks not associated with an investment in ordinary floating rate notes. An investment in Redeemable Leveraged Steepener Notes entails significant risks not associated with similar investments in a conventional debt security, including, but not limited to, fluctuations in the High-Side Reference Rate and the Low-Side Reference Rate and other events that are difficult to predict and beyond our control. This section describes the most significant risks relating to the terms of the Notes. For additional information as to the risks related to an investment in the Notes, please see the accompanying product prospectus supplement, prospectus supplement and prospectus. You should carefully consider whether the Notes are suited to your particular circumstances before you decide to purchase them. Accordingly, prospective investors should consult their financial and legal advisers as to the risks entailed by an investment in the Notes and the suitability of the Notes in light of their particular circumstances. After the Second Year of the Notes, the Amount of Interest Payable Is Uncertain and Could Be 0.00%. During the variable interest rate period, the amount of interest payable on the Notes in any interest period will depend on whether and the extent to which the High-Side Reference Rate is greater than the Low-Side Reference Rate on the related interest determination date. If the High-Side Reference Rate does not exceed the Low-Side Reference Rate on any interest determination date, the rate of interest payable for the related interest payment period will be 0%. As a result, the effective yield on the Notes may be less than what would be payable on our conventional notes of comparable maturity. The actual interest payments on the Notes and return of only the principal amount at maturity may not compensate you for the effects of inflation and other factors relating to the value of money over time.

The Amount of Interest Payable on the Notes in Any Interest Period Is Capped. The interest rate on the Notes for each quarterly interest period during the variable interest rate period is capped for that period at the maximum interest rate of 8.00%. Accordingly, you could receive less than 8.00% interest for any given full year even when the difference between the High-Side Reference Rate and the Low-Side Reference Rate increases substantially in a quarterly interest period during that year if the difference between these rates in the other interest periods in that year do not also increase substantially, as you will not receive the full benefit of the outperforming period due to the interest rate cap. The Notes Are Subject to Early Redemption at Our Option. Royal Bank has the option to redeem the Notes on the Call Dates set forth above. It is more likely that Royal Bank will redeem the Notes prior to their stated maturity date to the extent that the difference between the High-Side Reference Rate and the Low-Side Reference Rate during the term of the Notes results in an amount of interest payable that is greater than instruments of a comparable maturity and credit rating trading in the market. If the Notes are redeemed prior to their stated maturity date, you will not receive any interest payments on the Notes after the redemption date and you may have to reinvest the proceeds in a lower interest rate environment.

Investors Are Subject to Our Credit Risk, and Our Credit Ratings and Credit Spreads May Adversely Affect the Market Value of the Notes. Investors are dependent on Royal Bank's ability to pay all amounts due on the Notes on interest payment dates and at maturity, and, therefore, investors are subject to the credit risk of Royal Bank and to changes in the market's view of Royal Bank's creditworthiness. Any decrease in Royal Bank's credit ratings or increase in the credit spreads charged by the market for taking Royal Bank's credit risk is likely to adversely affect the market value of the Notes.

P-7 RBC Capital Markets, LLC

---



Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

The Initial Estimated Value of the Notes Is Less than the Price to the Public. The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the level of the Reference Rate, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount and the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the underwriting discount and the hedging costs relating to the Notes. In addition to bid-ask spreads, the value of the Notes determined for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.

The Initial Estimated Value of the Notes Is an Estimate Only, Calculated as of the Time the Terms of the Notes Were Set. The initial estimated value of the Notes is based on the value of our obligation to make the payments on the Notes, together with the mid-market value of the derivative embedded in the terms of the Notes. See “Structuring the Notes” below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to interest rates and volatility, and the expected term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do.

The value of the Notes at any time after the pricing date will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Notes in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Notes.

Recent Regulatory Investigations Regarding Potential Manipulation of the High Side Reference Rate and the Low Side Reference Rate May Adversely Affect Your Notes. It has been reported that certain U.S. and non-U.S. regulators are investigating potential manipulation of these rates and other swap rates. If such manipulation occurred, it may have resulted in these rates being artificially lower (or higher) than it or they would otherwise have been. Any changes or reforms affecting the determination or supervision of these rates in light of these investigations may result in a sudden or prolonged increase or decrease in these reported rates, which may have an adverse impact on the trading market for CMS-benchmarked securities, such as the Notes, the market value of your notes and the payments on your Notes after the second year of their term.

Uncertainty About the Future of LIBOR and The Potential Discontinuance of LIBOR May Adversely Affect the Value of the Notes. The Reference Rates Are Based on Hypothetical Interest Rate Swaps Referencing 3-Month U.S. Dollar LIBOR. The Chief Executive of the United Kingdom Financial Conduct Authority (the “FCA”), which regulates LIBOR, has recently announced that the FCA intends to stop persuading or compelling banks to submit rates for the calculation of LIBOR after 2021. At this time, it is not possible to predict the effect of any such changes on 3-month U.S. dollar LIBOR and, therefore, the High Side Reference Rate and the Low Side Reference Rate. Uncertainty as to the nature of such potential changes or other reforms may adversely affect the payments on the Notes after the second year of their term, and accordingly, the value of and the trading market for the Notes during their term. If either of these rates are discontinued, the Calculation Agent will have significant discretion in determining the interest payable

on the Notes.

P-8 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steepener Notes,  
Due April 13, 2028

#### SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of the Notes will be made against payment for the Notes on April 13, 2018, which is the second (2<sup>nd</sup>) business day following the Pricing Date (this settlement cycle being referred to as “T+2”). For additional information as to the relationship between us and RBC Capital Markets, LLC please see the section “Plan of Distribution Conflicts of Interest” in the prospectus dated January 8, 2016.

After the initial offering of the Notes, the price to the public may change. To the extent that the total aggregate principal amount of the Notes being offered by this pricing supplement is not purchased by investors in the offering, one or more of our affiliates may purchase the unsold portion. However, our affiliates will not purchase more than 15% of the principal amount of the Notes. Sales of these Notes by our affiliates could reduce the market price and the liquidity of the Notes that you purchase.

The value of the Notes shown on your account statement may be based on RBCCM’s estimate of the value of the Notes if RBCCM or another of our affiliates were to make a market in the Notes (which it is not obligated to do). That estimate will be based upon the price that RBCCM may pay for the Notes in light of then prevailing market conditions, our creditworthiness and transaction costs. For a period of up to approximately six months after the issue date of the Notes, the value of the Notes that may be shown on your account statement is expected to be higher than RBCCM’s estimated value of the Notes at that time. This is because the estimated value of the Notes will not include the underwriting discount and our hedging costs and profits; however, the value of the Notes shown on your account statement during that period is initially expected to be a higher amount, reflecting the addition of RBCCM’s underwriting discount and our estimated costs and profits from hedging the Notes. This excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Notes, it expects to do so at prices that reflect their estimated value.

We may use this pricing supplement in the initial sale of the Notes. In addition, RBC Capital Markets, LLC or another of our affiliates may use this pricing supplement in a market-making transaction in the Notes after their initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this pricing supplement is being used in a market-making transaction.

#### STRUCTURING THE NOTES

The Notes are our debt securities, the return on which is linked to the Reference Rate. As is the case for all of our debt securities, including our structured notes, the economic terms of the Notes reflect our actual or perceived creditworthiness at the time of pricing. In addition, because structured notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under these Notes at a rate that is more favorable to us than the rate that we might pay for a conventional fixed or floating rate debt security of comparable maturity. Using this relatively lower implied borrowing rate rather than the secondary market rate, is a factor that reduced the initial estimated value of the Notes at the time their terms were set. Unlike the estimated value included in this pricing supplement, any value of the Notes determined for purposes of a secondary market transaction may be based on a different funding rate, which may result in a lower value for the Notes than if our initial internal funding rate were used.

In order to satisfy our payment obligations under the Notes, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the issue date with RBCCM or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the Reference Rate, and the tenor of the Notes. The economic terms of the Notes and their initial estimated value depend in part on the terms of these hedging arrangements.

The lower implied borrowing rate is a factor that reduces the economic terms of the Notes to you. The initial offering price of the Notes also reflects the underwriting commission and our estimated hedging costs. These factors result in the initial estimated value for the Notes on the pricing date being less than their public offering price. See “Risk

Factors—The Initial Estimated Value of the Notes Is Less than the Price to the Public” above.

P-9 RBC Capital Markets, LLC

---

Redeemable Leveraged  
Steeper Notes,  
Due April 13, 2028

#### VALIDITY OF THE NOTES

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the Notes has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the Notes have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Notes will be validly issued and, to the extent validity of the Notes is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, and will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the Notes or the Indenture which may be limited by applicable law; to insolvency and other laws of general application affecting creditors' rights, to limitations under applicable limitations statutes, and to limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated January 8, 2016, which has been filed as Exhibit 5.1 to Royal Bank's Form 6-K filed with the SEC on January 8, 2016.

In the opinion of Morrison & Foerster LLP, when the Notes have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the Notes will be valid, binding and enforceable obligations of Royal Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally, concepts of reasonableness and equitable principles of general applicability (including, without limitation, concepts of good faith, fair dealing and the lack of bad faith). This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated January 8, 2016, which has been filed as Exhibit 5.2 to the Bank's Form 6-K dated January 8, 2016.

P-10 RBC Capital Markets, LLC

---